AMENDMENTS

Applicants request that the Examiner enter the following amendments:

1. (Currently amended) In a centripetally-motivated fluid micromanipulation apparatus, a microsystem platform comprising

a) a rotatable platform, comprising a substrate having a first flat, planar surface and a second flat, planar surface opposite thereto, each surface comprising a center about which the platform is rotated, wherein the first surface comprises in combination

b) an entry port comprising a depression in the first surface having a volumetric capacity of about 1 to about 150μL, that is fluidly connected with

c) a first microchannel which defines an internal dimension ~~a cross-sectional area~~ of about 0.02mm to about 1mm ~~in diameter~~, and wherein the microchannel extends radially from the center of the platform and defines a first end proximally arrayed towards the center of the platform and a second end distally arrayed from the center of the platform, wherein the first microchannel is fluidly connected with

d) a first fluid chamber having a depth from ~~in~~ the first surface of the platform equal to or greater than the first microchannel and positioned radially more distant from the center of the platform than the entry port,

wherein rotation of the platform at a first rotational speed motivates displacement of the fluid in the entry port through the first microchannel and into the first fluid chamber; and wherein the platform further comprises

e) a second fluid chamber containing a volume of a displacement fluid, the second fluid chamber being fluidly connected with

f) a second microchannel, wherein the second microchannel extends radially from the center of the platform and defines a first end proximally arrayed towards the center of the platform and a second end distally arrayed from the center of the platform, wherein the second microchannel is fluidly connected with the second fluid chamber at the first end of the microchannel and wherein the second microchannel is fluidly connected with the first fluid chamber at the second end of the microchannel, wherein rotation of the platform at the first rotation speed does not motivate flow of the

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displacement fluid through the second microchannel; and wherein the platform further comprises

g) a third fluid chamber that is fluidly connected with

h) a third microchannel, wherein the ~~second~~ third microchannel extends radially from the center of the platform and defines a first end proximally arrayed towards the center of the platform and a second end distally arrayed from the center of the platform, wherein the third microchannel is fluidly connected with the third fluid chamber at the first end of the microchannel and wherein the third microchannel is fluidly connected with the second fluid chamber at the second end of the microchannel, wherein rotation of the platform at the first rotation speed does not motivate flow of the displacement fluid through the third microchannel;

wherein rotation of the platform at a second rotational speed motivates flow of the displacement fluid from the second fluid chamber, through the second microchannel and into the first fluid chamber, wherein flow of the displacement fluid into the first fluid chamber forces the fluid in the first fluid chamber through the third microchannel and into the third fluid chamber;

and wherein each of the microchannels and the fluid chambers also comprise air displacement channels whereby air displaced by fluid movement is vented to the first surface of the platform.

2. (Original) A method for moving a fluid in a microsystem platform according to Claim 1, the method comprising the steps of

a) applying an amount of a fluid sample comprising a volume of about 1 to about 100μL to the entry port of the rotatable microsystem platform;

b) rotating the platform at a first rotation speed for a time sufficient to displace the fluid in the entry port into the first fluid chamber; and

c) rotating the platform at a second rotation speed that is greater than the first rotational speed that motivates the displacement fluid through the displacement fluid from the second fluid chamber, through the second microchannel and into the first fluid chamber, wherein flow of the displacement fluid into the first fluid chamber forces the fluid in the first fluid chamber through the third microchannel and into the third fluid chamber.

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3. (Currently amended) In a centripetally-motivated fluid micromanipulation apparatus, a microsystem platform comprising

a) a rotatable platform, comprising a substrate having a first flat, planar surface and a second flat, planar surface opposite thereto, each surface comprising a center about which the platform is rotated, wherein the first surface comprises in combination

b) an entry port comprising a depression in the first surface having a volumetric capacity of about 1 to about 150μL, that is fluidly connected with

c) a first metering capillary and a second overflow capillary, each being fluidly connected with the entry port, wherein each capillary defines an internal dimension ~~a cross-sectional area~~ of about 0.02mm to about 1mm ~~in diameter~~, and wherein each capillary extends radially from the center of the platform and defines a first end proximally arrayed towards the center of the platform and a second end distally arrayed from the center of the platform, wherein the proximal end of each capillary defines a curved opening; wherein the first metering capillary defines a volume of the fluid and wherein the first metering capillary is fluidly connected with

d) a first fluid chamber having a depth from ~~in~~ the first surface of the platform equal to or greater than the metering capillary and positioned radially more distant from the center of the platform than the entry port, and the second overflow capillary is fluidly connected with

e) an overflow chamber having a depth in the surface of the platform equal to or greater than the overflow capillary and positioned radially more distant from the center of the platform than the first fluid chamber ~~holding channel~~ and the entry port,

wherein a capillary junction is formed at the junction of each of the metering capillary and the first fluid chamber ~~holding channel~~ and the overflow capillary and the overflow chamber, whereby fluid placed onto the disk at the entry port flows by capillary action to the junction of the metering capillary and the first fluid chamber ~~holding channel~~, and excess fluid flows by capillary action to the junction of the overflow capillary and the overflow chamber; and wherein rotation of the platform at a first rotation speed motivates fluid displacement in the overflow capillary into the overflow chamber but

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not fluid displacement in the metering capillary, whereby rotation of the platform at the first rotational speed drains the fluid from the entry port into the overflow chamber; and

wherein rotation of the platform at a second rotation speed that is greater than the first rotational speed motivates fluid displacement of the volume of the fluid in the metering capillary into the first fluid chamber; and wherein the platform further comprises

f) a second fluid chamber containing a volume of a displacement fluid, the second fluid chamber being fluidly connected with

g) a second microchannel, wherein the second microchannel extends radially from the center of the platform and defines a first end proximally arrayed towards the center of the platform and a second end distally arrayed from the center of the platform, wherein the second microchannel is fluidly connected with the second fluid chamber at the first end of the microchannel and wherein the second microchannel is fluidly connected with the first fluid chamber at the second end of the microchannel, wherein rotation of the platform at the first or second rotational speeds does not motivate flow of the displacement fluid through the second microchannel; and wherein the platform further comprises

h) a third fluid chamber that is fluidly connected with

i) a third microchannel, wherein the ~~second~~ third microchannel extends radially from the center of the platform and defines a first end proximally arrayed towards the center of the platform and a second end distally arrayed from the center of the platform, wherein the third microchannel is fluidly connected with the third fluid chamber at the first end of the microchannel and wherein the third microchannel is fluidly connected with the second fluid chamber at the second end of the microchannel, wherein rotation of the platform at the first or second rotational speeds does not motivate flow of the displacement fluid through the third microchannel;

wherein rotation of the platform at a third rotational speed motivates flow of the displacement fluid from the second fluid chamber, through the second microchannel and into the first fluid chamber, wherein flow of the displacement fluid into the first fluid chamber forces the fluid in the first fluid chamber through the third microchannel and into the third fluid chamber;

and wherein each of the microchannels and the fluid chambers also comprise air displacement

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channels whereby air displaced by fluid movement is vented to the first surface of the platform.

4. (Original) A method for moving a fluid in a microsystem platform according to Claim 3, the method comprising the steps of

a) applying an amount of a fluid sample comprising a volume of about 1 to about 100μL to the entry port of the rotatable microsystem platform;

b) rotating the platform at a first rotation speed for a time sufficient to displace the fluid in the entry port and the overflow capillary into the overflow chamber;

c) rotating the platform at a second rotation speed that is greater than the first rotational speed displace a volume of the fluid in the metering capillary into the first fluid chamber; and

d) rotating the platform at a third rotation speed that is greater than the first or second rotational speeds that motivates the displacement fluid through the displacement fluid from the second fluid chamber, through the second microchannel and into the first fluid chamber, wherein flow of the displacement fluid into the first fluid chamber forces the fluid in the first fluid chamber through the third microchannel and into the third fluid chamber.

5-6. (Cancelled)

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